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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
BELYAVSKYI, MICHAIL A	
ART UNIT	**PAPER NUMBER**
1644	

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/020,354	DALL'ACQUA ET AL.	
	Examiner	Art Unit	
	Michail A Belyavskyi	1644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 September 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *87-116* is/are pending in the application.

4a) Of the above claim(s) *89* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *87-88 and 90-116* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

RESPONSE TO APPLICANT'S AMENDMENT

1. Applicant's amendment, filed 09/07/04 is acknowledged.

Claims 87-116 are pending.

2. Newly submitted claim 89 directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: the invention of the elected Group I, claims 1-4,7-20, 58,69 and 86, now claims 87-88 and 90-116, drawn to a modified IgG, a pharmaceutical composition and a kit comprising said modified IgG, wherein modification is substitution with tyrosine at position of 252 or substitution with threonine at positions 254 and 256, and modified IgG which has the heavy chain variable domain and light chain variable domain of SYNAGIS^{R} or A4B4L1FR-S28R. The invention of newly submitted claim 89 is drawn to a modified IgG, a pharmaceutical composition and a kit comprising said modified IgG, wherein modification is substitution at positions of 433,434 and 436. These inventions are differ with respect to their structures and physicochemical properties, which require non-coextensive searches; therefore each product is patentably distinct.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits.

Accordingly, claim 89 is withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claims 87-88 and 90-116 reads a modified IgG, a pharmaceutical composition and a kit comprising said modified IgG, wherein modification is substitution with tyrosine at position of 252 or substitution with threonine at positions 254 and 256, and modified IgG which has the heavy chain variable domain and light chain variable domain of SYNAGIS^{R} or A4B4L1FR-S28R under consideration in the instant application.

In view of the amendment, filed 09/07/04 the following rejections remain

3. The following is a quotation of the second paragraph of 35 U.S.C. 112.
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 87-88 and 90-116 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention for the same reason set forth in the previous Office Action mailed on 04/07/04.

A. Claims 87-88 and 90-116 are indefinite and ambiguous in the recitation of "modification of IgG at position 251-256, 285-290, 308-314, 385-389 and 438-436. Recitation of amino acid position from the first amino acid of a protein without providing SEQ ID NO for the protein is indefinite and ambiguous because different laboratories may have different numbering of the same protein.

B. It is also noted that newly submitted claim 107 recites " heavy and light chain variable domain of palivizumab". Recitation protein without providing SEQ ID NO for the protein is indefinite and ambiguous because different laboratories may have different name of the same protein.

Applicant asserts that : all residues of the IgG constant domain are numbered according to Kabat et al and that it is within the skill in the art to performed sequence alignment with known constant domains.

Contrary to Applicant's assertion, it is the Examiner position that recitation of amino acid position from the first amino acid of a protein without providing SEQ ID NO for the protein is indefinite and ambiguous because different laboratories may have different numbering of the same protein.

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:
The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claim 107 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention for the same reason set forth in the previous Office Action mailed on 04/07/04.

Applicant arguments filed on 09/07/04 have been fully considered but have not been found convincing.

Applicant asserts that Synagis antibody is and was commercially available at the time the application was filed as evidenced by the enclosed product information (Exhibit A).

It is noted however, that in Applicant's amendment, filed 09/07/04 there was no enclosed product information or Exhibit A.

7. In claim 107 , it is apparent that "palivizumab" antibody are required to practice the claimed invention. As a required element, it must be known and readily available to the public or obtainable by a repeatable method set forth in the specification. If they are not so obtainable or available, the enablement requirements of 35 U.S.C. 112, first paragraph, may be satisfied by a deposit hybridoma producing SYNAGIS^{R} and A4B4L1FR-S28R. See 37 CFR 1.801-1.809.

The Office will accept commercial availability as evidence that a biological material is known and readily available only when the evidence is clear and convincing that the public has access to the material. A product could be commercially available but only at a price that effectively eliminates accessibility to those desiring to obtain a sample. The relationship between the applicant relying on a biological material and the commercial supplier is one factor that would be considered in determining whether the biological material was known and readily available. However, the mere fact that the biological material is commercially available only through the patent holder or the patent holder's agents or assigns shall not, by itself, justify a finding that the necessary material is not readily available, absent reason to believe that access to the biological material would later be improperly restricted. Moreover, the concepts of "known and readily available to the public" are considered to reflect a level of public accessibility to a necessary component of the invention disclosure that is consistent with the ability to make and use the invention. Neither concept alone is sufficient. A material may be known in the sense that its existence has been published, but is not available to those who wish to obtain that particular known biological material. Likewise, a biological material may be available in the sense that those having possession of it would make it available upon request, but no one has been informed of its existence (See MPEP 2404.01). The applicant did not make of record any of the facts and circumstances surrounding the access to palivizumab antibody at the time the invention was made.

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:
A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 37(c) of this title before the invention thereof by the applicant for patent.

Claims 87, 92 93, 95, 96 and 108-116 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent 6,277,375 the same reason set forth in the previous Office Action mailed on 04/07/04.

Applicant arguments filed on 09/07/04 have been fully considered but have not been found convincing.

Applicant asserts that US Patent '375 does not teach amino acid substitution with threonine at amino acid residues 252, 254 and 256 of an IgG.

Contrary to Applicant's assertion, it is the Examiner position that US Patent '375 do teach amino acid substitution with threonine at amino acid residues 252, 254 and 256 of an IgG. Applicant's attention is respectively drawn to column 4, lines 55-60. It is explicitly disclosed that " these include substituting another residue for thereonine 252, theronine 254, threonine 256... ".

US Patent '375 teaches a modified human , humanized and non-human IgG comprising an IgG constant domain, wherein modified IgG has an increase half-life compared to the half-life of an IgG having the wild type IgG constant domain.(see entire document, Abstract in particular). US Patent '375 teaches that said modified IgG has higher affinity for the FcRn at pH 6.0 than at pH 7.4 (see column 2, lines 28-35 in particular). US patent '375 teaches the general method to make a modified IgG that has an increase half-life compared to the half-life of an IgG having the wild type IgG constant domain. US Patent '375 teaches a specific positions and specific amino acids modifications in CH2 and CH3 domains that increases half life of said modified IgG , including substitution threonine at position 252 , threonine at position 254 and threonine at position 256(see column 3, line 25-50, column 4, lines 50-65 in particular). US Patent '375 teaches that production an modified IgG with increased in vivo half-life would be generally useful in treating various diseases (see overlapping columns 3-4 in particular) and that similar strategies are applicable to immunoglobulin-like domains of various molecules (see column 5, lines 25-45 in particular) . US Patent '375 teaches a pharmaceutical composition and kit comprising said modified IgG (see column 29, lines 29-35 in particular). US Patent '375 teaches an advantageous method for determining other residues important for catabolism control that can be modified by substitution to increase a half-life of a modify IgG (see column 4, lines 50-60 in particular).

The reference teaching anticipates the claimed invention.

10. Claims 106 and 107 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,277,375 in view of US Patent 6,572,856 the same reason set forth in the previous Office Action mailed on 04/07/04.

Applicant arguments filed on 09/07/04 have been fully considered but have not been found convincing.

Applicant asserts that neither US Patent '375 nor Us Patent '856 teach or suggest a modified IgG comprising a human IgG comprising the substitution recited in claim 87.

As has been have been discussed, supra it is the examiner position that US Patent '375 does teach a modified IgG comprising a human IgG comprising the substitution as recited in claim 87.

US Patent '375 does not explicitly teach human or humanized modified IgG which has the heavy chain variable domain and light chain variable domain of SYNAGIS^{R}, as claimed in claim 19, or specifically binds to an RSV antigen, as claimed in claim 86.

US Patent '856 teaches SYNAGIS^{R} antibody, which is a humanized anti-respiratory syncytial virus monoclonal antibody which specifically binds to an RSV antigen. (see entire document, Abstract and Column 10, line 49-55 in particular). US Patent '856 teaches that an effective strategies and methods for treating viral infection, including RSV comprises increasing persistence of said antibodies in circulation (see overlapping columns 2-3).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the teaching of US Patent '856 to those of US Patent '375 to obtain a claimed modified IgG which has the heavy chain variable domain and light chain variable domain of SYNAGIS^{R}, or specifically binds to an RSV antigen.

One of ordinary skill in the art at the time the invention was made would have been motivated to do so, because increasing persistence of antibodies in circulation, for example modified IgG which has the heavy chain variable domain and light chain variable domain of SYNAGIS^{R}, or specifically binds to an RSV antigen would be beneficial for treatinf viral infection. This can be done by increasing half-life of IgG by modifying IgG by the method taught by US Patent '375. The strongest rationale for combining references is a recognition, expressly or impliedly in the prior art or drawn from a convincing line of reasoning based on established scientific principles or legal precedent, that some advantage or expected beneficial result would have been produced by their combination. In re Semaker. 217 USPQ 1, 5 - 6 (Fed. Cir. 1983). See MPEP 2144.

From the combined teaching of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole was *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

The following new ground of rejection are necessitated by the amendment filed 09/07/04

11. The following is a quotation of the first paragraph of 35 U.S.C. 112:
The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

12. Claims 87, 91, 93, 94, 95-1116 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. **This is a New Matter rejection.**

(i) " substitution at the amino acid residue 252 with threonine, at amino acid residue 256 with asparate, alanine or asparagines, at the amino acid residue 433 with isoleucine, proline or glutsmine, at amino acid residue 434 with histidine, asparagines, arginine, threonine, lysine or methionine claimed in claims 87 , 91 102 ; (ii) substitution at amino acid residue 385 with threonine, histidine, lysine, alanine or glycine, substitution at amino acid residue 386 with aspartic acid, serine, lysine, arginine, isoleucine or methionine, substitution at amino acid 387 with proline, histidine, serine, threonine or alanine claimed in claims 93 , 94 103; (iii) modified IgG as recited in claims 96, 98, 99-101; (iv) modified IgG which has the heavy and light chain of palivizumab, claimed in claim 107 represent a departure from the specification and the claims as originally filed and applicant has not pointed out where the support come from.

The specification and the claims as originally field only support a substitution at indicated position with specific amino acid as recited in original claim 11, for example substitution at the amino acid residue 252 with tyrosine, tryptophane or phenylalanine, at position 256 with glutamine, arginine, serine, threonine or glutamate, etc.

13. No claim is allowed

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michail Belyavskyi whose telephone number is 571/ 272-0840 The examiner can normally be reached Monday through Friday from 9:00 AM to 5:30 PM. A message may be left on the examiner's voice mail service. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Chan can be reached on 571/ 272-0841 .

The fax number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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